

CLAIMS:

1. A folding knife comprising:

a handle;

5 a blade attached to the handle, wherein the blade is rotatable about a pivot axis provided in the handle, wherein the blade is movable between a retracted storage position where the blade is stored in the handle and an open extended position where the blade is exposed and extends from the
10 handle, and wherein the blade has a tang which is positioned within the handle when the blade is located at the open extended position;

a cam surface formed on the peripheral edge of the tang, wherein the cam surface contains a substantially arcuate guide
15 portion extending arcuately around the pivot axis and an engage portion formed contiguous to one end of the guide portion;

a lock plate supported by the handle to be rotatable about an axis parallel to the pivot axis, wherein the lock
20 plate is rotatable between a lock position where the lock plate engages with the engage portion so as to lock the blade at the open extended position, and an unlock position where the lock plate disengages from the engage portion so as to permit the blade to move from the open extended position, and
25 wherein when the blade is located at the open extended position, the lock plate is permitted to rotate between the lock position and the unlock position, whereas when the lock plate is located at the unlock position, the blade is permitted to move between the open extended position and the
30 retracted storage position with the guide portion opposing the lock plate; and

an urging member for urging the lock plate from the unlock position toward the lock position, wherein when the blade is located at the open extended position, the urging
35 member rotates the lock plate toward the lock position so as

to lock the blade against the handle.

2. The folding knife according to claim 1, further comprising
a manual operation member for rotating the lock plate from the
5 lock position toward the unlock position.

3. The folding knife according to claim 2, wherein the manual
operation member is a lever provided on one side of the
handle, and the lever is connected to the lock plate to be
10 rotatable integrally with the lock plate.

4. The folding knife according to claim 3, wherein the handle
has on one side thereof a depression for placing the lever
therein.

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5. The folding knife according to claim 1, wherein the lock
plate has a substantially disc shape and also has a peripheral
edge which opposes the cam surface of the tang, wherein the
peripheral edge of the lock plate has an arcuate lock surface
20 which is engageable with the engage portion, wherein the
engage portion has an inverted arcuate shape that
substantially matches the arcuate profile of the lock surface,
and wherein the lock surface engages with the engage portion
when the lock plate is rotated to the lock position with the
25 blade being located at the open extended position.

6. The folding knife according to claim 5, wherein the arc
containing the lock surface has a center deviated from an axis
of the lock plate.

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7. The folding knife according to claim 5, wherein the
peripheral edge of the lock plate contains a flat release
surface formed contiguous to the lock surface, and wherein
when the lock plate is rotated to the unlock position with the
35 blade being located at the open extended position, the lock

surface disengages from the engage portion to let the release surface oppose the engage portion.

8. The folding knife according to claim 7, wherein the lock plate is held at the unlock position when the release surface is abutted against the guide portion, and wherein the blade moves between the open extended position and the retracted storage position as the guide portion slides along the release surface.

9. The folding knife according to claim 1, wherein the lock plate and the engage portion are formed such that a rotating force directed from the unlock position toward the lock position acts upon the lock plate when the blade is subject to a force directed from the open extended position toward the retracted storage position with the lock plate being engaged with the engage portion.

10. The folding knife according to claim 1, wherein the engage portion is a first engage portion formed contiguous to one end of the guide portion, wherein the cam surface further contains a second engage portion formed on the other end of the guide portion, and wherein when the blade is located at the retracted storage position, the urging member urges the lock plate so as to engage the lock plate with the second engage portion and thus holds the blade at the retracted storage position.

11. The folding knife according to claim 1, wherein the handle has a stopper which engages with the blade located at the open extended position to prevent the blade from rotating over the open extended position.

12. The folding knife according to claim 1, wherein the lock plate has a guide pin extending parallel to the axis of the

lock plate, and wherein the handle has a guide slot which receives the guide pin and extends along a travel route of the guide pin.

5 13. The folding knife according to claim 1, wherein the urging member is a torsion spring disposed around the axis of the lock plate, and wherein the torsion spring has one end portion which is connected to the handle and the other end portion which is connected to the lock plate at a position
10 deviated from the axis of the lock plate.

14. A folding knife comprising:

a handle having a pair of side walls, wherein the handle has a distal end portion and a proximal end portion;

15 a blade shaft attached to the distal end portion of the handle, wherein the blade shaft has an axis traversing the handle;

a blade disposed between the side walls and supported by the blade shaft to be rotatable with respect to the handle,
20 wherein the blade can move between a retracted storage position where the blade is stored within the handle and an open extended position where the handle is exposed and extends from the handle, and wherein the blade has a tang to be positioned within the handle when the blade is located at the
25 open extended position;

a cam surface formed on the peripheral edge of the tang, wherein the cam surface contains a substantially arcuate guide portion extending arcuately around the axis of the blade shaft and an engage portion formed contiguous to one end of the
30 guide portion;

a substantially disc-shaped lock plate supported by the handle to be rotatable about an axis parallel to the axis of the blade shaft, wherein the lock plate is interposed between the side walls, and has a peripheral edge which opposes the
35 cam surface of the tang, wherein the peripheral edge of the

lock plate contains an arcuate lock surface which is engageable with the engage portion and a flat release surface formed contiguous to the lock surface, wherein the lock plate is rotatable between a lock position where the lock surface engages with the engage portion so as to lock the blade at the open extended position, and an unlock position where the lock surface disengages from the engage portion so as to permit the blade to move from the open extended position, and wherein when the blade is located at the open extended position, the lock plate is permitted to rotate between the lock position and the unlock position, whereas when the lock plate is located at the unlock position, the blade is permitted to move between the open extended position and the retracted storage position with the guide portion opposing the release surface;

15 a spring for urging the lock plate from the unlock position toward the lock position, wherein when the blade is located at the open extended position, the spring rotates the lock plate toward the lock position so as to lock the blade against the handle; and

20 a manual operation member for rotating the lock plate from the lock position toward the unlock position.

15. The folding knife according to claim 14, wherein the manual operation member is a lever provided on one side of the handle, and wherein the lever is connected to the lock plate to be rotatable integrally therewith.

16. The folding knife according to claim 14, wherein the lock plate has a guide pin extending parallel to an axis of the lock plate, and wherein the handle has a guide slot which receives the guide pin and extends along a travel route of the guide pin.

17. A folding knife comprising:

35 a handle;

a blade attached to the handle, wherein the blade is rotatable about a pivot axis provided in the handle, wherein the blade is movable between a retracted storage position where the blade is stored in the handle and an open extended position where the blade is exposed and extends from the handle, and wherein the blade has a tang which is positioned within the handle when the blade is located at the open extended position;

a stopper provided in the handle, wherein the stopper engages with the blade located at the open extended position to prevent the blade from rotating beyond the open extended position;

a cam surface formed on the peripheral edge of the tang, wherein the cam surface contains a substantially arcuate guide portion extending arcuately around the pivot axis and an engage portion formed contiguous to one end of the guide portion;

a lock plate supported by the handle to be rotatable about an axis parallel to the pivot axis, wherein the lock plate is rotatable between a lock position where the lock plate engages with the engage portion so as to lock the blade at the open extended position, and an unlock position where the lock plate disengages from the engage portion so as to permit the blade to move from the open extended position;

an urging member for urging the lock plate from the unlock position toward the lock position, wherein when the blade is located at the open extended position, the urging member rotates the lock plate toward the lock position so as to lock the blade against the handle; and

a lever for rotating the lock plate from the lock position toward the unlock position, wherein the lever is connected to the lock plate to be rotatable integrally therewith and is disposed on one side of the handle so that it is operated manually.